

WHAT IS CLAIMED IS:

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1. A network device control method comprising:
 - an initial sheet information acquisition and display
 - 5 step of acquiring and displaying initial sheet information on an initial screen of a device window which is a window allocated to individual network peripheral devices on a one to one basis for controlling network devices; and
 - 10 a different sheet information acquisition and display
 - 15 step of acquiring and displaying different types of sheet information on a device window when determined that a user has requested display of different type sheet information.
2. A network device control unit comprising :
 - 15 initial sheet information acquisition and display means for acquiring and displaying initial sheet information on an initial screen of a device window which is a window allocated to individual network peripheral devices on a one to one basis for controlling network devices; and
 - 20 different sheet information acquisition and display means for acquiring and displaying different types of sheet information on a device window when determined that a user has requested display of different type sheet information.

3. A recording medium capable of being read by a computer in which programs are stored, said programs including:

initial sheet information acquisition and display step of acquiring and displaying initial sheet information on an

5 initial screen of a device window which is a window allocated to individual network peripheral devices on a one to one basis for controlling network devices; and

a different sheet acquisition and display step of acquiring and displaying different types of sheet

10 information on a device window when determined that a user has requested display of different type sheet information.

4. A network device control method comprising:

an initial sheet information acquisition and display

15 step of acquiring and displaying initial sheet information on an initial screen of a device window which is a window allocated to individual network peripheral devices on a one to one basis;

a separate sheet information list making step to make

20 a list of separate sheet information not consisting of the initial sheet information acquired and displayed in said initial sheet information acquisition and display step;

an acquisition sheet information decision step to decide the sheet information list to acquire from the

separate sheet information lists made in said separate sheet information list making step;

a different sheet information acquisition and display step of acquiring and displaying different types of newly

5 requested sheet information on a device window opened by said initial sheet information acquisition and display step, when determined that an entry was made by a user requesting display of different type sheet information;

an all sheet information acquisition decision step of

10 deciding whether all sheet information is acquired;

a single sheet information acquisition decision step to decide whether all acquisition of sheet information from currently acquired sheet information has ended as determined in said acquisition sheet information decision step when

15 found in said all sheet information acquisition decision step that not all information was acquired;

a sheet information list status change step to change the sheet information list status of previously acquired information when decided by means of said single sheet

20 information acquisition decision step that all current acquisition of sheet information has ended; and

a network device information acquisition step of acquiring network device information when decided by means of said single sheet information acquisition step, that not

all current acquisition of sheet information has ended.

5. A network device control unit comprising:
 - initial sheet information acquisition and display
- 5 means for acquiring and displaying initial sheet information on an initial screen of a device window which is a window allocated to individual network peripheral devices on a one to one basis;
- 10 a separate sheet information list making means to make a list of separate sheet information not consisting of the initial sheet information acquired and displayed in said initial sheet information acquisition and display means;
- 15 acquisition sheet information decision means to decide the sheet information list to acquire from the separate sheet information lists made in said separate sheet information list making means;
- 20 different sheet acquisition and display means for acquiring and displaying different types of newly requested sheet information on a device window opened by said initial sheet information acquisition and display means, when determined that an entry was made by the user requesting display of different type sheet information;
- 25 all sheet information acquisition decision means for deciding whether all sheet information is acquired;

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single sheet information acquisition decision means to decide whether acquisition of all sheet information from the currently acquired sheet information has ended as determined in said acquisition sheet information decision

5 means, when found in said all sheet information acquisition decision that not all sheet information is acquired;

sheet information list status change means to change the sheet information list status of previously acquired information when decided by means of said single sheet

10 information acquisition decision means that all current acquisition of sheet information has ended; and

network device information acquisition means for acquiring network device information when decided by way of said single sheet information acquisition means, that not

15 all current acquisition of sheet information has ended.

6. A recording medium capable of being read by a computer in which programs are stored, said programs including:

initial sheet information acquisition and display step

20 of acquiring and displaying initial sheet information on an initial screen of a device window which is a window allocated to individual network peripheral devices on a one to one basis;

a separate sheet information list making step to make

a list of separate sheet information not consisting of the initial sheet information acquired and displayed in said initial sheet information acquisition and display step;

an acquisition sheet information decision step to

5 decide the sheet information list to acquire from the separate sheet information lists made in said separate sheet information list making step;

a different sheet information acquisition and display step of acquiring and displaying different types of newly

10 requested sheet information on a device window opened by said initial sheet information acquisition and display step, when determined that an entry was made by the user requesting display of different type sheet information;

an all sheet information acquisition decision step of

15 deciding whether all sheet information is acquired;

a single sheet information acquisition decision step to decide whether acquisition of all sheet information from currently acquired sheet information has ended as determined in said acquisition sheet information decision step when

20 found in said all sheet information acquisition decision step that not all information is acquired;

sheet information list status change step to change the sheet information list status of previously acquired information when decided by means of said single sheet

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information acquisition decision step that all current acquisition of sheet information has ended; and

5 a network device information acquisition step of acquiring network device information when decided by means of said single sheet information acquisition step, that not all current acquisition of sheet information has ended.

7. A network device control method according to claim 1 or claim 4, wherein said initial sheet information

10 acquisition and display step comprising:

an initial sheet information specifying step of specifying initial sheet information;

15 a sheet information list making step to make a serial information list from initial sheet information specified in said initial sheet information specifying step; and

an information acquisition step of requesting, acquiring and displaying information for the network device based on the sheet information list made in said sheet information list making step.

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8. A network device control unit according to claim 2 or claim 5, wherein said initial sheet information acquisition and display means comprising:

initial sheet information specifying means for

specifying initial sheet information;

sheet information list making means to make a serial information list from initial sheet information specified in said initial sheet information specifying means; and

5 information acquisition means for requesting, acquiring and displaying information for the network device based on the sheet information list made in said sheet information list making means.

10 9. A recording medium according to claim 3 or claim 6, wherein said initial sheet information acquisition and display step comprising:

an initial sheet information specifying step of specifying initial sheet information;

15 a sheet information list making step to make a serial information list from initial sheet information specified in said initial sheet information specifying step; and

an information acquisition step of requesting, acquiring and displaying information for the network device

20 based on the sheet information list made in said sheet information list making step.

10. A network device control method according to claim 7, wherein the user specifies initial sheet information on an

initial sheet information screen as said initial sheet information specifying step.

11. A network device control method according to claim 7,
5 wherein said initial sheet information specifying step comprises a network device status identifier of for determining the status of the network device, and a status initial sheet set step to set the displayed initial sheet information by way of the network device status determined
10 in said network device status identifier step.

12. A network device control unit according to claim 8,
wherein said initial sheet information specifying means comprises the network device control unit specifying initial
15 sheet information in a fixed pattern.

13. A network device control unit according to claim 8,
wherein said initial sheet information specifying means specifies the initial sheet information by utilizing an
20 initial sheet information identifier to identify initial sheet information held in the initialize file stored in the storage means of said network device.

14. A network device control unit according to claim 13,

wherein as means to hold sheet information in said initialize file, the immediately prior used network device control unit of this invention holds the identifier for the sheet information acquired and displayed most recently, in the 5 initialize file.

15. A network device control unit according to claim 8, wherein as said initial sheet information specifying means, the user specifies the initial sheet information when using 10 the network device control unit.

16. A network device control unit according to claim 8, wherein said initial sheet information specifying means comprises network device status identifier means for 15 determining the status of the network device, and status initial sheet set means to set the displayed initial sheet information by way of the network device status determined in said network device status identifier means.

20 17. A recording medium according to claim 9, wherein said initial sheet information specifying step includes a program of specifying initial sheet information in a fixed pattern.

18. A recording medium according to claim 9, wherein said

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initial sheet information specifying step specifies the initial sheet information by utilizing an initial sheet information identifier to identify initial sheet information held in the initialize file stored in said recording medium.

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19. A recording medium according to claim 18, wherein as a method to hold sheet information in said initialize file, the immediately prior used network device control unit of this invention holds the identifier for the sheet information 10 acquired and displayed most recently, in the initialize file.

20. A recording medium according to claim 9, wherein as said initial sheet information specifying step, the user specifies initial sheet information on an initial sheet 15 information screen.

21. A recording medium according to claim 9, wherein said initial sheet information specifying means consists of network device status identifier means for determining the 20 status of the network device, and

status initial sheet set means to set the displayed initial sheet information by way of the network device status determined in said network device status identifier means.

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22. A network device control method according to claim 1 or claim 4, wherein said separate sheet information acquisition and display step comprising:

an separate sheet information specifying step of

5 specifying separate sheet information;

a sheet information list making step to make a serial information list from separate sheet information specified in said separate sheet information specifying step; and

an information acquisition step of requesting,

10 acquiring and displaying information for the network device based on the sheet information list made in said sheet information list making step.

23. A network device control unit according to claim 2 or claim 5, wherein said separate sheet information acquisition and display means comprising:

separate sheet information specifying means for

specifying separate sheet information;

sheet information list making means to make a serial

20 information list from separate sheet information specified in said separate sheet information specifying means; and

information acquisition means for requesting,

acquiring and displaying information for the network device based on the sheet information list made in said sheet

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information list making means.

24. A recording medium according to claim 3 or claim 6, wherein said initial sheet information acquisition and
5 display step comprising:

an separate sheet information specifying step of specifying separate sheet information;

a sheet information list making step to make a serial information list from separate sheet information specified
10 in said separate sheet information specifying step; and

an information acquisition step of requesting, acquiring and displaying information for the network device based on the sheet information list made in said sheet information list making step.

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25. A network device control method according to claim 7, wherein said initial sheet information acquisition step comprising:

a sheet information compulsory acquisition decision
20 step of deciding whether or not to compulsorily acquire sheet information;

an instant display step to display a portion of the information beforehand based on the currently held sheet information, when decided not to perform compulsory

acquisition in said sheet information compulsory acquisition decision step;

a display all sheet information step to decide whether or not all sheet information was displayed when decided to

5 perform compulsory acquisition in said sheet information compulsory acquisition decision step;

a network device information acquisition step of acquiring network device information;

a network device holding decision step to decide

10 whether or not previously acquired network device information (hereafter called "cache") is being held;

a cache comparison step to compare the cache value with the network device information value newly acquired by way of said network device acquisition step when determined to

15 hold in cache by said network device holding decision step;

a cache value hold step to hold the acquired network device information as a cache value when results of the comparison of the cache value with the newly acquired network device information value are determined to differ and also

20 when decided a cache is not being held by way of said network device holding decision step;

a network device information display step to display on said device window, said cache value held in said cache value hold step;

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a sheet list status change step to change the status
of currently displayed information on the sheet list to
display-completed status in order to decide whether to
display all network device information in said display all
sheet information step;

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an update decision step to decide whether or not to
update the display of information on said device window when
decided all network device information was displayed in
display all sheet information step;

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a timer update set step to set an automatic update
timer when determined to perform updates in the update
decision step;

16
a timer update monitor step to determine whether or
not the time is up, on the automatic update timer set in said
timer update set step; and

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an update stop monitor step to monitor if updating has
stopped or not when the time has not run out on the automatic
update timer monitored in the timer update monitor step.

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26. A network device control unit according to claim 8,
wherein said information acquisition means comprising:

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sheet information compulsory acquisition decision
means for deciding whether or not to compulsorily acquire
sheet information;

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instant display means to display a portion of the information beforehand based on the currently held sheet information, when decided not to perform compulsory acquisition in said sheet information compulsory acquisition

5 decision means;

display all sheet information means to decide whether or not all sheet information was displayed when decided to perform compulsory acquisition in said sheet information compulsory acquisition decision means;

10 network device information acquisition means for acquiring network device information;

network device holding decision means to decide whether or not previously acquired network device information (hereafter called "cache") is being held;

15 cache comparison means to compare the cache value with the network device information value newly acquired by way of said network device acquisition means when determined to hold in cache by said network device holding decision means;

cache value hold means to hold the acquire network device value as a cache value when results of the comparison of the cache value with the newly acquired network device information value are determined to differ and also when decided a cache is not being held by way of said network device holding decision means;

network device information display means to display on said device window, said cache value held in said cache value hold means;

sheet list status change means to change the status 5 of currently displayed information on the sheet list to display-completed status in order to decide whether to display all network device information in said display all sheet information means;

update decision means to decide whether or not to 10 update the display of information on said device window when decided all network device information was displayed in display all sheet information means;

timer update set means to set an automatic update timer when determined to perform automatic updates in the 15 update decision means;

timer update monitor means to determine whether or not the time is up, on the automatic update timer set in said timer update set means; and

update stop monitor means to monitor if updating has 20 stopped or not when the time has not run out on the automatic update timer monitored in the timer update monitor means.

27. A recording medium according to claim 9, wherein said initial sheet information acquisition step comprising:

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a sheet information compulsory acquisition decision step of deciding whether or not to compulsorily acquire sheet information;

an instant display step to display a portion of the 5 information beforehand based on the currently held sheet information, when decided not to perform compulsory acquisition in said sheet information compulsory acquisition decision step;

a display all sheet information step to decide whether 10 or not all sheet information was displayed when decided to perform compulsory acquisition in said sheet information compulsory acquisition decision step;

a network device information acquisition step of acquiring network device information; 15 a network device holding decision step to decide whether or not previously acquired network device information (hereafter called "cache") is being held;

a cache comparison step to compare the cache value with the network device information value newly acquired by way 20 of said network device acquisition step when determined to hold in cache by said network device holding decision step;

a cache value hold step to hold the acquire network device value as a cache value when results of the comparison of the cache value with the newly acquired network device

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information value are determined to differ and also when decided a cache is not being held by way of said network device holding decision step;

5 a network device information display step to display on said device window, said cache value held in said cache value hold step;

10 a sheet list status change step to change the status of currently displayed information on the sheet list to display-completed status in order to decide whether to display all network device information in said display all sheet information step;

15 an update decision step to decide whether or not to update the display of information on said device window when decided all network device information was displayed in display all sheet information step;

a timer update set step to set an automatic update timer when determined to perform updates in the automatic update decision step;

20 a timer update monitor step to determine whether or not the time is up, on the automatic update timer set in said timer update set step; and

an update stop monitor step to monitor if updating has stopped or not when the time has not run out on the automatic update timer monitored in the timer update monitor step.

28. A network device control method according to claim 25, wherein said instant display step comprising:

5 a sheet information list decision step of deciding whether the three steps of a cache value enable decision step, a network device information display step and a sheet information list status change step were implemented on the currently held sheet information list;

10 a cache value enable decision step to decide whether information in said sheet information list was previously acquired, when determined by utilizing the sheet information list decision step, that said cache value enable decision step and the two steps of network device information display step and sheet information list status change step were not

15 implemented for the entire sheet information list;

20 a network device information display step to display a cache value of certain information on said device window when determined that the information was previously acquired by way of said cache value enable decision step; and

sheet list status change step to change the status of currently displayed information on the sheet list to display-completed status.

29. A network device control unit according to claim 26,

wherein said instant display means comprising:

sheet information list decision means for deciding whether the three means of a cache value enable decision means, a network device information display means and a sheet information list status change means were implemented on the currently held sheet information list;

cache value enable decision means to decide whether information in said sheet information list was previously acquired, when determined by utilizing the sheet information list decision means, that said cache value enable decision means and the two means of network device information display means and sheet information list status change means were not implemented for the entire sheet information list;

network device information display means to display a cache value of certain information on said device window when determined that the information was previously acquired by way of said cache value enable decision means; and

sheet list status change means to change the status of currently displayed information on the sheet list to display-completed status.

30. A recording medium according to claim 27, wherein said instant display step comprising:

a sheet information list decision step of deciding

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whether the three steps of a cache value enable decision step, a network device information display step and a sheet information list status change step were implemented on the currently held sheet information list;

5 a cache value enable decision step to decide whether information in said sheet information list was previously acquired, when determined by utilizing the sheet information list decision step, that said cache value enable decision step and the two steps of network device information display

10 step and sheet information list status change step were not implemented for the entire sheet information list;

15 a network device information display step to display a cache value of certain information on said device window when determined that the information was previously acquired by way of said cache value enable decision step; and

20 a sheet list status change step to change the status of currently displayed information on the sheet list to display-completed status.

31. A network device control method according to claim 7, wherein said information acquisition step comprising:

25 a display all sheet information decision step to decide whether or not to all sheet information was displayed;

30 a network device information hold decision step to

decide whether the cache is being held when determined in said display all sheet information decision step that not all of the information was displayed;

a sheet information compulsory acquisition decision

5 step of deciding whether or not to compulsorily acquire sheet information;

a network device information acquisition step to acquire information on the network device when determined in said sheet information compulsory acquisition decision

10 step to compulsorily acquire sheet information;

a cache comparison step to compare the cache value with the device information value newly acquired by said network device information acquisition step;

a cache value hold step to hold the acquired network

15 device information as a cache value when results of the comparison of the cache value with the newly acquired device information value are determined to differ and also when determined by way of said network device holding decision step, that the previously acquired network device

20 information is not being held;

a network device information display step of displaying on said network device window, the cache value held by means of said cache value hold step;

a sheet list status change step to change the status

of currently displayed information on the sheet list to display-completed status in order to decide whether to display all network device information in said display all sheet information step;

5 an update decision step to decide whether or not to update the display of information on said device window when determined that all network device information was displayed in said display all sheet information step;

10 a timer update set step to set an automatic update timer when determined to perform updates in said update decision step;

a timer update monitor step to determine whether or not the time is up, on the automatic update timer set in said timer update set step; and

15 an update stop monitor step to monitor if updating has stopped or not when the time has not run out on the automatic update timer monitored in the timer update monitor step.

32. A network device control unit according to claim 8,
20 wherein said information acquisition means comprising:

display all sheet information decision means to decide whether or not to all sheet information was displayed;

network device information hold decision means to decide whether the cache is being held when determined in

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1 said display all sheet information decision means that not all of the information was displayed;

2 sheet information compulsory acquisition decision means for deciding whether or not to compulsorily acquire

3 sheet information;

4 network device information acquisition means to acquire information on the network device when determined in said sheet information compulsory acquisition decision means to compulsorily acquire sheet information;

5 10 cache comparison means to compare the cache value with the device information value newly acquired by said network device information acquisition means;

6 cache value hold means to hold the acquired network device information as a cache value when results of the

7 15 comparison of the cache value with the newly acquired device information value are determined to differ and also when determined by way of said network device holding decision means, that the previously acquired network device information is not being held;

8 20 network device information display means for displaying on said network device window, the cache value held by means of said cache value hold means;

9 sheet list status change means to change the status of currently displayed information on the sheet list to

display-completed status in order to decide whether to display all network device information in said display all sheet information means;

update decision means to decide whether or not to

5 update the display of information on said device window when determined that all network device information was displayed in said display all sheet information means;

timer update set means to set an automatic update timer when determined to perform updates in said update decision

10 means;

timer update monitor means to determine whether or not the time is up, on the automatic update timer set in said timer update set means; and

update stop monitor means to monitor if updating has

15 stopped or not when the time has not run out on the automatic update timer monitored in the timer update monitor means.

33. A recording medium according to claim 9, wherein said information acquisition step comprising:

20 a display all sheet information decision step to decide whether or not to all sheet information was displayed;

a network device information hold decision step to decide whether the cache is being held when determined in said display all sheet information decision step that not

all of the information was displayed;

a sheet information compulsory acquisition decision step of deciding whether or not to compulsorily acquire sheet information;

5 a network device information acquisition step to acquire information on the network device when determined in said sheet information compulsory acquisition decision step to compulsorily acquire sheet information;

a cache comparison step to compare the cache value with

10 the device information value newly acquired by said network device information acquisition step;

a cache value hold step to hold the acquired network device information as a cache value when results of the comparison of the cache value with the newly acquired device

15 information value are determined to differ and also when determined by way of said network device holding decision step, that the previously acquired network device information is not being held;

a network device information display step of

20 displaying on said network device window, the cache value held by means of said cache value hold step;

a sheet list status change step to change the status of currently displayed information on the sheet list to display-completed status in order to decide whether to

display all network device information in said display all sheet information step;

an update decision step to decide whether or not to update the display of information on said device window when 5 determined that all network device information was displayed in said display all sheet information step;

a timer update set step to set an automatic update timer when decided to perform updates in said update decision step;

a timer update monitor step to determine whether or 10 not the time is up, on the automatic update timer set in said timer update set step; and

an update stop monitor step to monitor if updating has stopped or not when the time has not run out on the automatic update timer monitored in the timer update monitor step.

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34. A network device control method utilizing SNMP protocol comprising:

a step to discriminate between MIB data requiring a write request and MIB data not requiring a write request for 20 the SNMP agent of the network device, from among the MIB data matching the information that was write-specified by a user.

35. A network device control method comprising:

a step to store MIB data obtained from an MIB data

read-out process into an MIB data cache; and
a step to compare data stored in MIB data cache in above
step with MIB data matching information write-specified by
the user in an MIB data write process.

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36. A network device control method comprising:
a step to store MIB data obtained from an MIB data write
process into an MIB data cache; and
a step to compare data stored in MIB data cache in above
10 step with MIB data matching information write-specified by
the user in an MIB data write process.

37. A network device control method comprising:
a step to store MIB data obtained from an MIB data
15 read-out process into an MIB data cache;
a step to store MIB data written in an MIB write process
into an MIB data cache; and
a step to compare data stored in MIB data cache in
either of above steps, with MIB data matching information
20 write-specified by the user in an MIB data write process.

38. A network device control unit utilizing SNMP protocol
comprising:
means to discriminate between MIB data requiring a

write request and MIB data not requiring a write request for the SNMP agent of the network device, from among the MIB data matching the information that was write-specified by a user.

5 39. A network device control unit comprising:

means to store MIB data obtained from an MIB data read-out process into an MIB data cache; and

a means to compare data stored in MIB data cache in above means with MIB data matching the information

10 write-specified by a user in an MIB data write process.

40. A network device control unit comprising:

means to store MIB data obtained from an MIB data write process into an MIB data cache; and

15 means to compare data stored in MIB data cache in said means with MIB data matching the information write-specified by a user in an MIB data write process.

41. A network device control unit comprising:

20 means to store MIB data obtained from an MIB data read-out process into an MIB data cache;

means to store MIB data written in an MIB write process into an MIB data cache; and

means to compare data stored in MIB data cache by either

of said means, with MIB data matching information write-specified by the user in an MIB data write process.

42. A network device control method utilizing SNMP
5 protocol comprising:

a recording medium capable of being scanned or read by a computer in which a program is stored to discriminate between MIB data requiring a write request and MIB data not requiring a write request for the SNMP agent of a network
10 device, from among the MIB data matching the information that was write-specified by a user.

43. A recording medium capable of being read by a computer in which programs are stored, said programs including:

15 a step of storing MIB data obtained from an MIB data read-out process into an MIB data cache; and
a step of comparing data stored in MIB data cache in said step with MIB data matching information write-specified by a user in an MIB data write process.

20 44. A recording medium capable of being read by a computer in which programs are stored, said programs including:
a step of storing MIB data obtained from an MIB data write process into an MIB data cache; and

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a step of comparing data stored in MIB data cache in said step with MIB data matching information write-specified by a user in an MIB data write process.

5 45. A recording medium capable of being read by a computer in which programs are stored, said programs including:

a step of storing MIB data obtained from an MIB data read-out process into an MIB data cache;

a step of storing MIB data written in an MIB write process into an MIB data cache; and

a step of comparing data stored in MIB data cache in either of said steps, with MIB data matching information write-specified by a user in an MIB data write process.

15 46. A network device control unit for controlling a device connected onto network utilizing SNMP protocol comprising:

holding means to hold the latest MIB data when MIB data for said device is read or when this MIB data is written for said device, by storing said MIB data into the specified cache memory;

comparison means to compare the latest MIB data for said device held by said holding means when writing of new MIB data was specified for said device and excluding cases where writing of said MIB data already has sufficient

significance; and

control means to update said holding means and also write the applicable MIB data into said device, only when results from the above comparison means show a difference 5 between the newly written MIB data and the held MIB data.

47. A network device control unit according to claim 46, wherein said cache memory is jointly shared by the entire network.

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48. A network device control method according to claim 22, wherein said initial sheet information acquisition step comprising:

15 a sheet information compulsory acquisition decision step of deciding whether or not to compulsorily acquire sheet information;

an instant display step to display a portion of the information beforehand based on the currently held sheet information, when decided not to perform compulsory

20 acquisition in said sheet information compulsory acquisition decision step;

a display all sheet information step to decide whether or not all sheet information was displayed when decided to perform compulsory acquisition in said sheet information

compulsory acquisition decision step;

a network device information acquisition step of acquiring network device information;

a network device holding decision step to decide

5 whether or not previously acquired network device information (hereafter called "cache") is being held;

a cache comparison step to compare the cache value with the network device information value newly acquired by way of said network device acquisition step when determined to

10 hold in cache by said network device holding decision step;

a cache value hold step to hold the acquired network device information as a cache value when results of the comparison of the cache value with the newly acquired network device information value are determined to differ and also

15 when decided a cache is not being held by way of said network device holding decision step;

a network device information display step to display on said device window, said cache value held in said cache value hold step;

20 a sheet list status change step to change the status of currently displayed information on the sheet list to display-completed status in order to decide whether to display all network device information in said display all sheet information step;

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an update decision step to decide whether or not to update the display of information on said device window when decided all network device information was displayed in display all sheet information step;

5 a timer update set step to set an automatic update timer when determined to perform updates in the update decision step;

10 a timer update monitor step to determine whether or not the time is up, on the automatic update timer set in said timer update set step; and

15 49. A network device control unit according to claim 23, wherein said information acquisition means comprising:

sheet information compulsory acquisition decision means for deciding whether or not to compulsorily acquire sheet information;

20 instant display means to display a portion of the information beforehand based on the currently held sheet information, when decided not to perform compulsory acquisition in said sheet information compulsory acquisition decision means;

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display all sheet information means to decide whether or not all sheet information was displayed when decided to perform compulsory acquisition in said sheet information compulsory acquisition decision means;

5 network device information acquisition means for acquiring network device information;

network device holding decision means to decide whether or not previously acquired network device information (hereafter called "cache") is being held;

10 cache comparison means to compare the cache value with the network device information value newly acquired by way of said network device acquisition means when determined to hold in cache by said network device holding decision means;

cache value hold means to hold the acquire network device value as a cache value when results of the comparison of the cache value with the newly acquired network device information value are determined to differ and also when decided a cache is not being held by way of said network device holding decision means;

15 network device information display means to display on said device window, said cache value held in said cache value hold means;

sheet list status change means to change the status of currently displayed information on the sheet list to

display-completed status in order to decide whether to display all network device information in said display all sheet information means;

update decision means to decide whether or not to

5 update the display of information on said device window when decided all network device information was displayed in display all sheet information means;

timer update set means to set an automatic update timer when determined to perform automatic updates in the

10 update decision means;

timer update monitor means to determine whether or not the time is up, on the automatic update timer set in said timer update set means; and

update stop monitor means to monitor if updating has stopped or not when the time has not run out on the automatic update timer monitored in the timer update monitor means.

50. A recording medium according to claim 24, wherein said initial sheet information acquisition step comprising:

20 a sheet information compulsory acquisition decision step of deciding whether or not to compulsorily acquire sheet information;

an instant display step to display a portion of the information beforehand based on the currently held sheet

information, when decided not to perform compulsory acquisition in said sheet information compulsory acquisition decision step;

5 a display all sheet information step to decide whether or not all sheet information was displayed when decided to perform compulsory acquisition in said sheet information compulsory acquisition decision step;

10 a network device information acquisition step of acquiring network device information;

15 a network device holding decision step to decide whether or not previously acquired network device information (hereafter called "cache") is being held;

20 a cache comparison step to compare the cache value with the network device information value newly acquired by way of said network device acquisition step when determined to hold in cache by said network device holding decision step;

25 a cache value hold step to hold the acquire network device value as a cache value when results of the comparison of the cache value with the newly acquired network device information value are determined to differ and also when decided a cache is not being held by way of said network device holding decision step;

30 a network device information display step to display on said device window, said cache value held in said cache

value hold step;

5 a sheet list status change step to change the status of currently displayed information on the sheet list to display-completed status in order to decide whether to display all network device information in said display all sheet information step;

10 an update decision step to decide whether or not to update the display of information on said device window when decided all network device information was displayed in display all sheet information step;

15 a timer update set step to set an automatic update timer when determined to perform updates in the automatic update decision step;

20 a timer update monitor step to determine whether or not the time is up, on the automatic update timer set in said timer update set step; and

51. A network device control method according to claim 48, wherein said instant display step comprising:

a sheet information list decision step of deciding whether the three steps of a cache value enable decision step,



a network device information display step and a sheet information list status change step were implemented on the currently held sheet information list;

a cache value enable decision step to decide whether 5 information in said sheet information list was previously acquired, when determined by utilizing the sheet information list decision step, that said cache value enable decision step and the two steps of network device information display step and sheet information list status change step were not 10 implemented for the entire sheet information list;

a network device information display step to display a cache value of certain information on said device window when determined that the information was previously acquired by way of said cache value enable decision step; and 15 sheet list status change step to change the status of currently displayed information on the sheet list to display-completed status.

52. A network device control unit according to claim 49, 20 wherein said instant display means comprising:

sheet information list decision means for deciding whether the three means of a cache value enable decision means, a network device information display means and a sheet information list status change means were implemented on the

currently held sheet information list;

cache value enable decision means to decide whether information in said sheet information list was previously acquired, when determined by utilizing the sheet information

5 list decision means, that said cache value enable decision means and the two means of network device information display means and sheet information list status change means were not implemented for the entire sheet information list;

network device information display means to display

10 a cache value of certain information on said device window when determined that the information was previously acquired by way of said cache value enable decision means; and

sheet list status change means to change the status of currently displayed information on the sheet list to

15 display-completed status.

53. A recording medium according to claim 50, wherein said instant display step comprising:

a sheet information list decision step of deciding

20 whether the three steps of a cache value enable decision step, a network device information display step and a sheet information list status change step were implemented on the currently held sheet information list;

a cache value enable decision step to decide whether

information in said sheet information list was previously acquired, when determined by utilizing the sheet information list decision step, that said cache value enable decision step and the two steps of network device information display 5 step and sheet information list status change step were not implemented for the entire sheet information list;

10 a network device information display step to display a cache value of certain information on said device window when determined that the information was previously acquired by way of said cache value enable decision step; and

15 a sheet list status change step to change the status of currently displayed information on the sheet list to display-completed status.

15 54. A network device control method according to claim 22, wherein said information acquisition step comprising:

20 a display all sheet information decision step to decide whether or not to all sheet information was displayed;

a network device information hold decision step to decide whether the cache is being held when determined in said display all sheet information decision step that not all of the information was displayed;

a sheet information compulsory acquisition decision step of deciding whether or not to compulsorily acquire sheet

information;

a network device information acquisition step to acquire information on the network device when determined in said sheet information compulsory acquisition decision 5 step to compulsorily acquire sheet information;

a cache comparison step to compare the cache value with the device information value newly acquired by said network device information acquisition step;

a cache value hold step to hold the acquired network 10 device information as a cache value when results of the comparison of the cache value with the newly acquired device information value are determined to differ and also when determined by way of said network device holding decision step, that the previously acquired network device 15 information is not being held;

a network device information display step of displaying on said network device window, the cache value held by means of said cache value hold step;

a sheet list status change step to change the status 20 of currently displayed information on the sheet list to display completed status in order to decide whether to display all network device information in said display all sheet information step;

an update decision step to decide whether or not to

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update the display of information on said device window when determined that all network device information was displayed in said display all sheet information step;

5 a timer update set step to set an automatic update timer when determined to perform updates in said update decision step;

a timer update monitor step to determine whether or not the time is up, on the automatic update timer set in said timer update set step; and

10 an update stop monitor step to monitor if updating has stopped or not when the time has not run out on the automatic update timer monitored in the timer update monitor step.

55. A network device control unit according to claim 23,
15 wherein said information acquisition means comprising:

display all sheet information decision means to decide whether or not to all sheet information was displayed;

20 network device information hold decision means to decide whether the cache is being held when determined in said display all sheet information decision means that not all of the information was displayed;

sheet information compulsory acquisition decision means for deciding whether or not to compulsorily acquire sheet information;

network device information acquisition means to acquire information on the network device when determined in said sheet information compulsory acquisition decision means to compulsorily acquire sheet information;

5 cache comparison means to compare the cache value with the device information value newly acquired by said network device information acquisition means;

cache value hold means to hold the acquired network device information as a cache value when results of the

10 comparison of the cache value with the newly acquired device information value are determined to differ and also when determined by way of said network device holding decision means, that the previously acquired network device information is not being held;

15 network device information display means for displaying on said network device window, the cache value held by means of said cache value hold means;

sheet list status change means to change the status of currently displayed information on the sheet list to

20 display-completed status in order to decide whether to display all network device information in said display all sheet information means;

update decision means to decide whether or not to update the display of information on said device window when

determined that all network device information was displayed in said display all sheet information means;

5 timer update set means to set an automatic update timer when determined to perform updates in said update decision means;

timer update monitor means to determine whether or not the time is up, on the automatic update timer set in said timer update set means; and

10 update stop monitor means to monitor if updating has stopped or not when the time has not run out on the automatic update timer monitored in the timer update monitor means.

56. A recording medium according to claim 24, wherein said information acquisition step comprising:

15 a display all sheet information decision step to decide whether or not to all sheet information was displayed;

a network device information hold decision step to decide whether the cache is being held when determined in said display all sheet information decision step that not 20 all of the information was displayed;

a sheet information compulsory acquisition decision step of deciding whether or not to compulsorily acquire sheet information;

a network device information acquisition step to

acquire information on the network device when determined in said sheet information compulsory acquisition decision step to compulsorily acquire sheet information;

5 a cache comparison step to compare the cache value with the device information value newly acquired by said network device information acquisition step;

10 a cache value hold step to hold the acquired network device information as a cache value when results of the comparison of the cache value with the newly acquired device information value are determined to differ and also when determined by way of said network device holding decision step, that the previously acquired network device information is not being held;

15 a network device information display step of displaying on said network device window, the cache value held by means of said cache value hold step;

20 a sheet list status change step to change the status of currently displayed information on the sheet list to display-completed status in order to decide whether to display all network device information in said display all sheet information step;

an update decision step to decide whether or not to update the display of information on said device window when determined that all network device information was displayed

in said display all sheet information step;

a timer update set step to set an automatic update timer when decided to perform updates in said update decision step;

a timer update monitor step to determine whether or

5 not the time is up, on the automatic update timer set in said timer update set step; and

an update stop monitor step to monitor if updating has stopped or not when the time has not run out on the automatic update timer monitored in the timer update monitor step.

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A2
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C4